

**ABID CASE #17** Case study by Jim Perkins, M.D. (© 2009)

**History:** This patient was a 78-year-old woman who donated blood at Highland Park Hospital prior to bilateral knee replacement surgery. The patient stated that she had never been transfused.

**ABO and Rh Typing**

<A	<B	A1 cells	B cells	6% alb	<D	<D/AHG	CCC	Interp
4+	0	0	3+		4+			

**Antibody Screen**

	Gel
OI	2+
OII	2+

**Direct Antiglobulin Test (Immucor antisera)**

	Poly	IgG	<C3
AHG	vw+	vw+	0
CCC			

**Initial Panel**

Lot# 8RA145		Rh system						Kell						Duffy		Kidd		Xg		Lewis		MNSs				P	Lutheran		Other Typings	Cell	Gel		
Cell	Rh	D	C	E	c	e	V	K	k	Kp <sup>a</sup>	Kp <sup>b</sup>	Js <sup>a</sup>	Js <sup>b</sup>	Fy <sup>a</sup>	Fy <sup>b</sup>	Jk <sup>a</sup>	Jk <sup>b</sup>	Xg <sup>a</sup>	Le <sup>a</sup>	Le <sup>b</sup>	S	s	M	N	P1	Lu <sup>a</sup>	Lu <sup>b</sup>						
1	R1wR1	+	+	0	0	+	0	0	+	0	+	0	+	+	+	+	+	+	0	0	+	0	+	0	0	0	+	+	C <sup>w</sup>	1	2+		
2	R1R1	+	+	0	0	+	0	0	+	0	+	0	+	+	+	0	+	+	+	0	+	0	+	0	+s	0	+		2	2+			
3	R2R2	+	0	+	+	0	0	0	+	0	+	0	+	0	+	+	+	+	0	0	+	+	+	0	+s	0	+		3	2+			
4	Ror	+	0	0	+	+	+	0	+	0	+	0	+	0	0	+	0	+	0	0	+	+	+	+	+	0	+		4	2+			
5	r'r	0	+	0	+	+	0	0	+	0	+	0	+	+	0	+	0	+	0	+	+	+	0	+	+	0	+		5	2+			
6	r''r	0	0	+	+	+	0	0	+	0	+	0	+	+	+	+	+	+	0	0	+	+	0	+	0	+		6	2+				
7	rr	0	0	0	+	+	0	+	+	0	+	0	+	0	+	+	0	+	0	+	0	+	0	+	+	0	+		7	2+			
8	rr	0	0	0	+	+	0	0	+	0	+	0	+	+	+	0	+	+	0	+	+	0	+	+	+s	0	+		8	2+			
9	rr	0	0	0	+	+	0	0	+	0	+	0	+	+	0	+	0	+	0	+	0	+	0	+	0	0	+		9	2+			
10	rr	0	0	0	+	+	0	0	+	0	+	0	+	0	+	+	0	0	+	0	+	+	+	0	+	0	+		10	2+			
11	R1R1	+	+	0	0	+	0	+	+	0	+	0	+	0	+	0	+	0	0	+	0	+	+	+	+	0	+		11	2+			
Patient																												AC					

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**Additional cells (AHG is Immucor anti-IgG)**

Lot #27473	Rh system							Kell						Duffy		Kidd		Lewis		P	MNSs					Lutheran		Xg	Other	LISS					Eluate	
Cell	Rh	D	C	c	E	e	V	K	k	Kp <sup>a</sup>	Kp <sup>b</sup>	Js <sup>a</sup>	Js <sup>b</sup>	Fy <sup>a</sup>	Fy <sup>b</sup>	Jk <sup>a</sup>	Jk <sup>b</sup>	Le <sup>a</sup>	Le <sup>b</sup>	P1	M	N	S	s	Lu <sup>a</sup>	Lu <sup>b</sup>	Xg <sup>a</sup>	Typings	Cell	IS	37	AHG	CC	AHG	CC	
1	RZR1	+	+	0	+	+	0	0	+	0	+	0	+	0	+	0	+	0	+	0	+	0	+	+	0	+	+		1	0	0	1+		0	2+	
2	R1wR1	+	+	0	0	+	0	0	+	0	+	0	+	+	+	0	+	0	+	0	+	0	+	+	0	+	+	Sc:2	2	0	0	2+		0	2+	
3	R2R2	+	0	+	+	0	0	0	+	0	+	0	+	0	0	+	0	+	0	+	+	0	0	+	+	+	0	Co <sup>b</sup> +	3	0	0	1+		0	2+	
4	Ror	+	0	+	0	+	0	0	+	0	+	0	+	0	0	+	0	0	0	+	+	+	0	+	0	+	0	Go <sup>a</sup> +	4	0	0	1+		0	2+	
5	r'r	0	+	+	0	+	0	0	+	0	+	0	+	+	+	+	+	0	+	0	0	+	+	+	0	+	+		5	0	0	1+		0	2+	
6	r''r	0	0	+	+	+	0	0	+	0	+	0	+	0	+	0	+	0	+	+	0	+	0	+	0	+	+		6	0	0	1+		0	2+	
7	rr	0	0	+	0	+	0	+	+	0	+	0	+	0	+	+	0	0	+	+	+	0	+	+	0	+	+	Co <sup>b</sup> +	7	0	0	2+		0	2+	
8	rr	0	0	+	0	+	0	0	+	0	+	0	+	+	+	0	+	0	+	0	+	0	+	+	0	+	0	Co <sup>b</sup> +	8	0	0	1+		0	2+	
9	R1R2	+	+	+	+	+	0	0	+	0	+	0	+	+	+	0	+	0	0	0	+	+	0	+	0	+	+	I-, Bg <sup>a</sup> +	9	0	0	1+		0	2+	
10	R1R1	+	+	0	0	+	0	+	+	0	+	0	+	+	+	+	+	0	+	+	+	0	0	+	+	0	+		10	0	0	1+		0	2+	
11	R2R2	+	0	+	+	0	0	0	+	0	+	0	+	0	0	+	0	0	+	+	0	+	0	+	0	+	+		11	0	0	vw+		0	2+	
12	rr	0	0	+	0	+	0	0	+	0	+	0	+	0	+	0	+	0	+	+	0	+	0	0	0	+	+		12							
13	rr	0	0	+	0	+	0	0	+	0	+	0	+	+	+	0	+	0	0	0	+	+	+	0	+	0	+		13							
14	rr	0	0	+	0	+	0	0	+	0	+	0	+	0	0	+	0	+	0	0	+	0	+	0	+	0	+		14							
15	rr	0	0	+	0	+	+	0	+	0	+	0	+	0	0	+	+	0	0	+	+	+	+	0	0	+	+		15							
16	rr	0	0	+	0	+	0	0	+	0	+	+	+	0	0	+	0	0	0	0	+	0	+	0	+	+	+		16							
Patient																												AC	0	0	vw+					

**Antigen Phenotype**

	Rh system				Kell				Duffy		Kidd		Lewis		MNSs																						
	C	E	C	e	K	k	Kp <sup>a</sup>	Js <sup>a</sup>	Fy <sup>a</sup>	Fy <sup>b</sup>	Jk <sup>a</sup>	Jk <sup>b</sup>	Le <sup>a</sup>	Le <sup>b</sup>	S	s	M	N	P1	I	H	A <sub>1</sub>	C <sup>w</sup>														
Patient	3+	0	0	2+	1+	3+			1+	2+	1+	2+	0	2+	2+	2+	3+	3+	0				0														
Pos control	3+	4+	3+	2+	1+	3+			2+	2+	2+	2+	1+	2+	2+	2+	3+	3+	4+				1+														
Neg Control	0	0	0	0	0	0			0	0	0	0	0	0	0	0	0	0	0	0			0														

\*AHG is Immucor anti-IgG

**ABID CASE #17: QUESTIONS**

1. What can be said about the nature of this antibody(ies)?
2. What further workup would you do to identify it?

**ABID CASE #17**

Specimens collected at the time of a second donation were referred to Evanston Hospital for further testing.

**Repeat panel using Ortho anti-IgG (sensitive to IgG4)**

Lot #29533		Rh system						Kell						Duffy		Kidd		Lewis		P	MNSs					Lutheran		Xg	Other	LISS; Serum					PEG; Eluate	
Cell	Rh	D	C	c	E	e	V	K	k	Kp <sup>a</sup>	Kp <sup>b</sup>	Js <sup>a</sup>	Js <sup>b</sup>	Fy <sup>a</sup>	Fy <sup>b</sup>	JK <sup>a</sup>	JK <sup>b</sup>	Le <sup>a</sup>	Le <sup>b</sup>	P1	M	N	S	s	Lu <sup>a</sup>	Lu <sup>b</sup>	Xg <sup>a</sup>	Typings	Cell	IS	37	AHG	CC	AHG	CC	
1	RZR1	+	+	0	+	+	0	0	+	0	+	0	+	+	0	+	+	0	+	+	0	+	+	0	0	+	0		1	0	0	2+		0	2+	
2	R1wR1	+	+	0	0	+	0	0	+	0	+	0	+	0	+	0	+	0	+	0	0	+	0	+	0	+	0		2	0	0	2+		0	2+	
3	R2R2	+	0	+	+	0	0	0	+	0	+	0	+	0	+	+	+	0	+	0	+	+	0	+	0	+	+	Bg <sup>a</sup> +	3	0	0	2+		0	2+	
4	Ror	+	0	+	0	+	+	0	+	0	+	+	+	0	0	+	+	w	+	+	+	0	0	0	0	+	+		4	0	0	2+		0	2+	
5	r'r	0	+	+	0	+	0	0	+	0	+	0	+	0	+	0	+	+	+	+	0	+	+	0	+	+		5	0	0	2+		0	2+		
6	r''r	0	0	+	+	+	0	0	+	0	+	0	+	0	+	+	+	0	+	+	+	0	+	0	0	+	+	Bg <sup>a</sup> +	6	0	0	2+		0	2+	
7	rr	0	0	+	0	+	0	+	+	0	+	0	+	0	+	+	+	0	+	0	+	0	0	+	0	+		7	0	0	2+		0	2+		
8	rr	0	0	+	0	+	0	0	+	0	+	0	+	+	0	+	+	+	0	+	+	+	+	+	0	+		8	0	0	2+		0	2+		
9	R1R1	+	+	0	0	+	0	+	+	0	+	0	+	+	w	0	+	+	0	+	+	+	0	+	0	+	0		9							
10	R2R2	+	0	+	+	0	0	0	+	0	+	0	+	0	+	+	0	0	0	+	+	+	0	+	+	+	+		10							
11	rr	0	0	+	0	+	0	0	+	0	+	0	+	+	0	0	+	0	0	+	+	0	0	+	0	+	0		11							
12	r''r	0	0	+	+	+	0	0	+	0	+	0	+	0	+	0	+	0	+	0	+	+	+	+	+	+	0		12							
13	rr	0	0	+	0	+	0	0	+	0	+	0	+	+	0	+	0	0	+	+	+	0	+	+	0	+	+	Co <sup>b</sup> +	13							
14	rr	0	0	+	0	+	0	0	+	0	+	+	+	0	0	+	+	0	+	+	0	+	+	0	0	+	+	He+	14							
15	rr	0	0	+	0	+	+	0	+	0	+	0	+	+	0	+	0	0	0	w	+	0	0	+	0	+	+		15							
16	rr	0	0	+	0	+	0	0	+	0	+	0	+	0	0	+	0	0	0	+	0	+	0	+	0	+	0		16							
Patient																												AC								

**Titration: R1R1 cell; AHG is Immucor anti-IgG**

Sample dilution	1	2	4	8	16	32	64	128	256	512	1024	2048	Titer
Reaction strength at AHG phase	2+	2+	2+	2+	1+	w+	vw+	0	0	0			32

**Special testing; 4 drops serum to 1 drop saline-suspended RBCs**

	Immucor >IgG			Gamma >IgG (not sensitive to IgG4)		
	Untreated	Ficin tx RBCs	AET tx RBCs	IS	37°, 30'	>IgG
OI	2+	0	0	0	0	0
OII	2+	0	0	0	0	0

**ABID CASE #17**

Additional rare frozen RBCs: cells 1 – 12, using Ortho anti-IgG, cells 13 - 15 using Immucor anti-IgG (both sensitive to IgG4)

Cell	Rh	Rh system						Kell						Duffy		Kidd		Lewis		P	MNSs					Lutheran		Xg	Other Typings	LISS				
		D	C	c	E	e	V	K	k	Kp <sup>a</sup>	Kp <sup>b</sup>	Js <sup>a</sup>	Js <sup>b</sup>	Fy <sup>a</sup>	Fy <sup>b</sup>	Jk <sup>a</sup>	Jk <sup>b</sup>	Le <sup>a</sup>	Le <sup>b</sup>	P1	M	N	S	s	Lu <sup>a</sup>	Lu <sup>b</sup>	Xg <sup>a</sup>	Cell		IS	37	AHG	CC	
1		+	+	+	0	+		0						+	+	0	+	+	0		+		+	+	0			McC(a-b-c+d+)	1	0	0	2+		
2		0	0	+	0	+		0	+					+	+	+	+	0	0	0	+	0	+	+			Ge-3	2	0	0	2+			
3		+	+	0	0	+		0						+	+	+	0	0	+	+	+	0	+	+			Ge-1-2-3	3	0	0	2+			
4		0	0	+	0	+		0	+	0				+	+	+	+	0	0	0	+	+	+	+	0	0	Lu(a-b-)	4	0	0	2+			
5		+	+	+	0	+		0	+					0	0	0	+	+	0	+	+	0	0	+			McC(a-)	5	0	0	3+			
6		+	+	0	0	+		0						0	+	+	+				+	+	0	+			JMH -	6	0	0	0	2+		
7		+																									O cord	7	0	0	w+			
8		+																									O cord	8	0	0	w+			
9		+																									O cord	9	0	0	w+			
10		+	+	+	0	+		0	+					+	0	0	+	+	0	+	+	+	+	0			JMH -	10	0	0	0	2+		
11		+	+	0	0	+		0						+	0	+	+	0	+	+	+	0	+	+			JMH -	11	0	0	0	2+		
12		+	+	0	0	+		0						+	+	+	+	0	+		0	+	+	+			Yt(a-)	12		0	1+			
13		+	0	+	+	0	0	+	+	0	+	0	+	+	+	+	+	+	0	+	+	+	+	+	0	+	+	Yt(a-)	13		0	1+		
14		+	+	+	0	+		0	+	0				+	+	0	+	0	+	+	+	0	+	+			Yt(a-)	14		0	w+			
15																																		
16																																		
Patient																													AC					

**Direct Antiglobulin Test**

Manufacturer	Polyclonal AHG	Anti-IgG	Anti-C3
Gamma*	0	0	0
Ortho	vw+	vw+	
Immucor		vw+	

\*Not sensitive to IgG4

### **ABID CASE #17: QUESTIONS**

3. What is the identity of this antibody?
  
  
  
  
  
  
  
  
  
  
4. What results prompted the selection of the rare cells in the last panel?
  
  
  
  
  
  
  
  
  
  
5. What is the significance of the titration results?
  
  
  
  
  
  
  
  
  
  
6. Comment on the difference in reactivity using the “Gamma” AHG versus the Ortho and Immuncor reagents.
  
  
  
  
  
  
  
  
  
  
7. Is the patient at risk for an immediate hemolytic transfusion reaction? A delayed hemolytic transfusion reaction? How is this related to the answer to the previous question?